

REMARKS

Entry of the foregoing and reconsideration of the subject application are respectfully requested in light of the comments which follow.

Claims 1-23 were pending in this application. In this response, claims 1-23 have been amended, claims 2, 6 and 10-12 canceled and claims 24-27 added. Thus, claims 1, 3-5, 7-9 and 13-27 remain pending.

At least some of the amendments to each of the claims is directed only to form or to conform the claims to us practice, for example by removal of multiple dependencies and/or to replace the characterized phrase.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: the original claims, the drawing figures, e.g., FIG. 5, and the specification, page 3, lines 2-5.

CLAIM OBJECTIONS

Claims 20, 22-23 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim may not depend upon another multiple dependent claim for the reasons presented at page 2 of the Official Action. The present amendments correct the improper multiple dependency. Reconsideration and withdrawal of the rejection is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 112

Claims 7 and 8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the reasons presented at paragraphs 2-4 of the Official Action. By the present response, Applicants has amended claim 7 to recite the IVth and Vth groups of the periodic table and claim 8 has been amended to remove the narrow range, which is represented in new claim 24. Reconsideration and withdrawal of the rejection is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 102

Claims 1-6, 10-13, 17-19 and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,153,562 to Rodmar et al. (hereafter "*Rodmar et al.*") for the reasons presented at page 3 of the Office Action. Claims 1-13 and 16-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,623,850 to Kukino et al. (hereafter "*Kukino et al.*") for the reasons presented at page 3 of the Office Action. Claims 1-6 and 10-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,379,798 to Yazaki (hereafter "*Yazaki*") for the reasons presented at page 3 of the Office Action.

The present disclosure is directed to a coating which may be made with a PVD process and which has a top layer adapted to serve as a wear indicator (page 2, lines 23-26). This top, indicating layer can simply be removed from the cutting tool. In order to achieve this, a wear-protection layer with a metallic-crystalline structure is coated with the separating layer, which disrupts or weakens the metallic-crystalline bond between the wear-protection layer and the top layer. In so doing, the top layer is generally abraded as soon as the cutting tool is used for a first

time. Further, when the cutting tool is used the top layer is generally removed together with the separating layer since the separating layer only has a limited adhesion to the wear protection layer because of its nonmetallic-crystalline structure. The top layer does not need to have any specific characteristics. It can be selected or designed purely from aesthetic point of view and can thus have decorative functions. It can for example have a typical color characterizing the manufacturing company of the cutting tool. Such a coating overcomes difficulties with prior coatings, particular in regard to interlayer adhesion while still providing wear indication and other tribological properties.

In view of the above, exemplary embodiments of coatings (and inserts incorporating such coatings and methods of forming such coatings) include a wear-protection layer having a metallic-crystalline structure, a top layer having a metallic-crystalline structure, and a separating layer applied to at least one portion of the wear-protection layer and arranged between the wear-protection layer and the top layer, wherein the separating layer has a structure which is not metallic-crystalline. The disclosure teaches that the separating layer “interferes with or reduces the adhesion and disrupts or at least disturbs the metallic-crystalline structure of the other layers” (page 3, lines 5-8).

To anticipate a claim, the reference must teach all of the elements of the claim. See MPEP § 2131. In contrast to each of the independent claims, none of the presently cited references disclose at least “a separating layer which has a structure which is not metallic-crystalline” as claimed and/or disclose a separating layer that (i) contains or is a chemical compound with a preponderantly covalent bond, (ii) is strongly non-stoichiometrically composed, or (iii) is a strongly stressed layer.

Rodmar et al. refers to a coated carbide insert having a plurality of different layers. According to *Rodmar et al.*, the arrangement of these layers improves the wear resistance of the cutting tool insert (compare paragraphs [0003] and [0006]). There is not hint contained in this document to have a separating layer with reduced adhesion characteristics. Again the separating layer of the present invention does not have a wear reducing function and is provided to be removed together with the top layer when the tool is used.

Kukino et al. discloses a cutting tool consisting of a surface-coated high pressure phase type boron nitride sintered compact having a markedly improved adhesive strength of a hard coated layer to a cBN sintered compact substrate (compare abstract). According to the disclosure in *Kukino et al.*, an intermediate layer with good reactivity with cBN particles is provided so that the cBN sintered compact substrate can thus be coated with a hard coated layer with a high adhesive strength. As a result the hard coated layer is hardly delaminated even if subjected to cutting under severer conditions (compare paragraph [0028]). This disclosure teaches away from the present claims because the object of *Kukino et al.* is to create a high adhesion between the layers, not reduce or limit the adhesion. Also, the top layer in *Kukino et al.* is not an indication layer as in the present claims, but a wear resistant layer and, therefore, does not necessarily abrade easily.

Yazaki does refer to an indication layer. In *Yazaki*, the tool comprises a substrate with a high hardness that is coated with a coating layer. The coating contains an inner layer and an outermost layer. An intermediate layer between the inner and the outermost layer may be provided (Column 3, lines 1-7). The intermediate layer can be used for promoting peeling off the outermost layer. Carbon and/or a metal sulfide can be used (Column 3, lines 39 to 42).

However, the form of the bonds in *Yazaki* differ from those in the present claims. Namely, *Yazaki* uses metal sulfides, which have an ionic bond, and carbon, which has a crystal structure. Unlike *Yazaki*, the present claims incorporate a separating layer (i) with a covalent bond or (ii) that is non-stoichiometrically composed or (iii) that is a strongly stressed layer. None of these features is mentioned in *Yazaki*. Where *Yazaki* proposes to use carbon or metal sulfides the present claims use defined chemical or physical characteristics which can easily be created during the CVD or DVD process independent from the material used for the separating layer.

In light of at least the above-noted differences, Applicant respectfully submits that an anticipatory rejection is improper since none of *Rodmar et al.*, *Kukino et al.*, and *Yazaki* disclose the invention as claimed. Withdrawal of the present rejections is respectfully requested.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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